

OUTLINE FOR PRELIMINARY ASSESSMENT/SITE INSPECTION
SCOPE-OF-WORK UNDER CERCLA

1. Site Description and Project Overview and Objectives

Refer to the RI/FS outline for additional information on the topics to be covered here. In general, section 1 provides information developed by the USACE project team to the Contractor.

1.1 Site Background

- 1.1.1 Site History and Usage
- 1.1.2 Previous Studies and Results
- 1.1.3 Regulatory Authorities

The project manager should specify the appropriate references to regulatory program/ authority under which the site is being addressed (i.e. CERCLA/SARA, Executive Orders 12088 and 12580, the National contingency Plan, NEPA, any IAGs). Also note if the state has a mini-Superfund law. (Federal CERCLA has no transfer authority, so states do not have CERCLA authority. States, however, can adopt their own state laws in order to do the same thing as federal CERCLA.)

1.2 Project Planning Overview and Objectives

- 1.2.1 Preliminary Assessment/Site Inspection
(PA/SI) Site Strategy
- 1.2.2 Project Objectives and Project Decision
Statements

Refer to the extensive discussion of the project objectives development in the RI/FS outline. The PA/SI objectives are a series of statements indicating the specific objectives or goals of the PA/SI. General data needs of the PA/SI are to collect, minimally, sufficient information to support 1) determination of requirements for time-critical and non-time-critical response or removal actions, 2) evaluation pursuant to the Hazard Ranking System (HRS), and 3) elimination of no action sites from further consideration, or screening information to support scoping of additional phases

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of investigation. Data needs associated with these requirements would be preliminary risk screening analysis, feasibility of removal action alternative, and regulatory compliance. Determining the quantity and quality of data required to support these project specific decisions of the PA/SI will be defined by the project team as project specific data quality objectives

Determining overall site strategy and project specific objectives is an interactive project team approach, which will enable study to focus resources toward essential project requirements, and will enhance and accelerate the projected response action. Refer to section 1. of the RI/FS outline for more detailed information.

1.2.2 Data Quality Objectives

1.3 Development of Potential Actions

This would summarize the potential actions such as removal actions or interim remedial measures as identified by the project team. The team may want to consult paragraph 2.10 and Enclosure 11, Alternative Development and Selection. This would include development of potential removal actions or interim remedial measures, definitions of operable units, or identification of possible remedial actions.

1.4 Summary of Required Tasks

This is only a superficial listing of tasks to be performed under this scope-of-work. No details are to be given here.

- Task 1 - Plan Development/Preliminary Assessment
- Task 2 - Draft PA Report
- Task 3 - Site Investigation Planning
- Task 4 - Community Relations
- Task 5 - Field Investigations
- Task 6 - Sample Analysis, Data Assessment and Reporting
- Task 7 - Data Evaluation/Fate and Transport Analysis
- Task 8 - Preliminary Risk Screening Analysis
- Task 9 - Hazard Ranking System Scoring

- Task 10 - Preliminary Response Action
Identification
- Task 11 - PA/SI Report
- 1.5 References

Include citations of previous reports, guidance documents such as EPA's Conducting Preliminary Assessment/Site Inspection, AR 200-1 (including AEHA involvement), spill notification requirements, Agency for Toxic Substances and Disease Registry (ATSDR) Health Assessments, etc.

2. Project Requirements

While EPA has guidance and requires certain information to be gathered during the PA and SI, states and agencies such as AEHA may require that additional information be acquired and submitted to them for approval. These agencies should be consulted during project planning, for these additional requirements.

- 2.1 Task 1 Plan Preparation/Preliminary Assessment
 - 2.1.1 Contractor Plan Preparation

Refer to Task 1 of the RI/FS SOW outline for instructions on the Contractor plan preparation.

- 2.1.2 Preliminary Assessment
 - 2.1.2.1 Background Data Collection

Information can be obtained from EPA technical and enforcement files, state/local regulatory agency files, US Geological Survey files, government installations, ATSDR Health Assessments, and other relevant sources in order to describe the current situation at the site(s). Refer to section 2.1.1 of the RI/FS outline for more information on review of available data.

- 2.1.2.1.1 Review of Previous Reports
and Regulatory History
 - 2.1.2.1.2 Literature Searches

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- 2.1.2.1.3 Aerial Photographs
- 2.1.2.1.4 Interviews
- 2.1.2.1.5 Site Boundaries Identification
- 2.1.2.2 Preliminary Site Visit

- 2.2 Task 2 Draft PA Report
 - 2.2.1 Local/Regional Conditions Summary
 - 2.2.2 Site Boundaries Identification
 - 2.2.3 History of Regulatory Actions
 - 2.2.4 History and Extent of Problem

- 2.3 Task 3 Site Investigation Planning
 - 2.3.1 Workplan Development

Refer to explanatory text for section 2.1 of the RI/FS outline. The Contractor will be required in this section to prepare an overall workplan for the Site Inspection. This workplan will be supplemented by attachments that contain the CDAP, SSHP, and MWIP.

- 2.3.1.1 Identification/Refinement of Data Quality Objectives and Design of Data Collection Program

Refer to the RI/FS outline for more information on this topic.

- 2.3.1.1.1 HRS Scoring Requirements

Sufficient detail shall be given to discussion regarding how data will allow for adequate evaluation pursuant to HRS, requirements for removal action, or elimination of site from further consideration. Reference Federal Register, Vol. 55, No 241, 51532-51667, Hazard Ranking System, Final Rule, in specifying requirements for Contractor treatment in workplan approach.

- 2.3.1.1.2 Removal Action Alternative Development

This would require the Contractor to revise or develop a list of potential removal actions based on the PA. See paragraph 2.10 and Attachment K: Alternative Development and Selection. Development of removal action alternatives should be incorporated in the workplan. Appropriate alternatives should be considered in refining the DQOs.

- 2.3.1.1.3 Preliminary Screening and/or Identification of ARARs
- 2.3.1.1.4 Development of Data Collection Strategy
- 2.3.2 Preparation of Workplan Attachments

See technical requirements in sections 4, 5, and 6 of the RI/FS for contents of SSHP, CDAP, and MWIP, respectively.

- 2.3.2.1 Site Safety and Health Plan (SSHP) Attachment
- 2.3.2.2 Chemical Data Acquisition Plan (CDAP) Attachment
- 2.3.2.3 Monitoring Well Installation and Drilling Plan (MWIP) Attachment

2.4 Task 4 Community Relations

Formal public participation activities are not normally associated with the PA/SI phase of the CERCLA process. The project manager should coordinate with the customer and the appropriate regulatory authorities to verify that there are no public participation/community relations requirements.

2.5 Task 5 Field Investigations

Many of the field activities to be performed under the PA/SI are similar to the activities performed under the RI, except usually much smaller in scope.

NOTE: Only a small subset of the activities listed below would be done in this phase. The sections below are provided for completeness only and should not be inferred to mean that all of these activities are to be done in the PA/SI for each

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project. Refer to explanatory text under section 2.3 of the RI/FS outline for more information.

There are differences in approach for the PA/SI scoping from those done in more advanced studies because of the different objectives. PA/SI or confirmation study field activities are generally limited in level of effort compared to later studies. Sampling objectives may be more appropriately served by a biased phased approach, using cost effective screening methods rather than a random statistical basis. Refer to Sections 2.1 and 2.3 of the RI/FS outline for more information on these topics.

- 2.5.1 Site Topographic and Boundary Surveys
- 2.5.2 Geophysical Surveys
- 2.5.3 Soil Gas Sampling
- 2.5.4 Drum Sampling
- 2.5.5 Surface Soil Sampling
- 2.5.6 Surface Water/Lagoon Sampling
- 2.5.7 Leachate Sampling
- 2.5.8 Subsurface Soil Sampling
- 2.5.9 Fracture Trace Analyses
- 2.5.10 Monitoring Well Installation and Sampling
- 2.5.11 Air Sampling
- 2.5.12 Wipe Samples
- 2.5.13 Infiltration Testing
- 2.5.14 Domestic/Industrial/Municipal Well
Inventory

Refer to the identical task in Section 2.1.4.5 of the RI/FS outline for the explanatory text for this topic.

2.6 Task 6 Sample Analyses, Data Assessment and Reporting

The following sections should define the analytical and data assessment/validation protocols for the completion of the PA/SI. Specific data quality objectives (DQOs) should be developed to provide sufficient data and quality for HRS, preliminary risk screening, and regulatory compliance criteria evaluation. This will subsequently support the determination of a time-critical or a non-time-critical response/removal, an elimination of the site from further consideration, or provide support data toward future investigations.

The sampling and analytical approach utilized for the PA/SI requires the same attention toward detail as the RI/FS approach, but for a less encompassing effort. Care must be taken to compile enough information to meet the stated objectives, but the PA/SI is not intended to delineate the extent of contamination. Refer to the explanatory text within the RI/FS SOW outline for additional information over the following.

2.6.1 Data Review and Assessment

Based upon the data needs for the site-specific PA/SI, including a preliminary risk screening, regulatory compliance determination, health and safety planning, HRS scoring, and response action evaluation, the chemist should specify the level of confidence required for each type of data (existing and new). When developing the data requirements for the project, the chemist and technical staff must balance time and resource constraints with the desired confidence level of the data. Resource constraints not only include monies budgeted for the project overall but also the availability of a laboratory, sampling and analysis equipment, and personnel. Due to the high cost of sampling and analysis, the data collection program should be focused only on the data quality and quantity necessary and sufficient to meet the PA/SI objectives.

2.6.1.1 Existing Analytical Data

2.6.1.2 New Data

2.6.2 Analytical Procedures

The following sections of the SOW will outline specific analytical protocols to be followed on a site-specific basis for the entire PA/SI. The chemist should generate tables summarizing this information. An example and suggested format for these tables are located within the Project Planning Guidance (Completed Data Collection Option Array). Individual tables should be generated for each site with a multi-site PA/SI. The chemist must be intimately aware of the project background details, and the project DQOs in order to make decisions as to the most appropriate analytical protocol. This should include full knowledge of previous operations, and any previously completed data. The project

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chemist should collaborate with other data users to identify areas where data gaps exist requiring further assessment. Reference the explanatory text within the RI/FS SOW outline for additional information over the following.

- 2.6.2.1 Field Screening
 - 2.6.2.2 Water
 - 2.6.2.2.1 Surface Water
 - 2.6.2.2.2 Ground Water
 - 2.6.2.3 Soils/Sediments/Sludges
 - 2.6.2.4 Drum Samples
 - 2.6.2.5 Wipe Samples
 - 2.6.2.6 Air Samples
 - 2.6.2.7 Soil Gas
 - 2.6.3 Quality Assurance/Quality Control Samples
 - 2.6.3.1 QA Laboratory
 - 2.6.3.2 QC Samples
 - 2.6.4 Laboratory Internal Quality Control
 - 2.6.5 Method Detection Limits
 - 2.6.6 Laboratory Turnaround Time
 - 2.6.7 Sample Handling
 - 2.6.8 Preservatives and Holding Times
 - 2.6.9 Investigation-Derived Wastes
- 2.7 Task 7 Data Evaluation/Fate and Transport Analysis
- 2.7.1 Data Evaluation
 - 2.7.1.1 Comparison to Data Quality Objectives - Establish Data Usability

Refer to the RI/FS outline for more information on the content of this section. Note that this activity would be documented in the PA/SI report and will not require a separate document. For the PA/SI, this section would require usability parameters such as PARCC parameters and geotechnical/hydrogeological needs be evaluated, to support the intended use of the data; HRS scoring, removal actions, or elimination of site from further action.

2.7.1.2 Refinement of Site Conceptual Model

Refer to the RI/FS outline for more information on this section.

2.7.1.2.1 Nature of Contamination

This section should describe the requirements for refining the understanding of the nature of contamination at the sites. Refer to the RI/FS outline for general information about this topic. Careful cross referencing to the PA/SI report section (2.11) would be helpful in avoiding a duplication of instruction on preparing items related to this activity and double payment for the work.

2.7.1.2.2 Hydrogeology

Refer to the RI/FS for general information on the content of this section. Many of the presentations of the data would be used in the PA/SI report. The analysis performed under this section would only be conducted to the extent possible with information gathered to meet the objectives of the PA/SI.

2.7.2 Fate and Transport Analysis

Refer to the RI/FS outline for more information on the appropriate content of this section. At this phase of investigation, only simplistic analysis is usually appropriate.

- 2.7.2.1 Air Transport
- 2.7.2.2 Surface Water Transport
- 2.7.2.3 Ground Water Transport

This section, if applicable at this phase, would require the analysis of the potential for transport of contaminants by ground water by Contractor. This section may specify simple ground water modeling of contaminant transport (using analytical equations), if appropriate. The scope should make it clear that computer modeling would not be appropriate.

2.8 Task 8 Preliminary Risk Screening Analysis

Project team and member responsible for risk assessment shall specify level of effort required for the preliminary qualitative risk analysis based on customer specific requirements and project needs. Generally, framework should follow EPA's "Risk Assessment Guidance for Superfund, Volumes I & II", 1989, although it is qualitative in nature. Regulatory requirements or procedural basis for risk assessment follow from the NCP, 300.430, which describes the role of risk assessment in site evaluation and remedy selection. The results of the preliminary risk analysis help determine requirements for further action at a site, where no clear regulatory standards may apply.

2.8.1 Human Health Assessment

2.8.1.1 Identification of Chemicals of Concern

Data identified as required to support the risk or decision analysis in the DQOs for the project are evaluated in this section to determine if data collected was of sufficient quantity and quality as was specifically intended. If sampling design and analytical requirements were formulated properly (with the end use in mind), data to evaluate the nature and extent will be of sufficient quality and quantity to qualitatively evaluate 1) exposure routes, 2) exposure point concentrations, 3) intakes, and 4) the potential risks associated with a specific site. This would support the site decision.

DQOs for sampling requirements to support the preliminary risk analysis, take into account statistical representativeness, bounds of the data, toxicity reference concentrations in determining detection limits, spatial representativeness to evaluate exposure routes, and quality assurance/quality control, specific sampling and analytical requirements to assure data may be used for qualitative risk analysis.

Selection of chemicals therefore, must evaluate data quality and quantity sufficient to support the preliminary risk analysis, by evaluating data by originally intended DQOs for quality with respect to sample quantitation limits, qualifiers and codes, blanks, background samples, frequency of detection.

2.8.1.2 Exposure Assessment

The conceptual site model, preliminarily developed by the project planning team, and further refined by the Contractor in the workplan and data evaluation section of the PA/SI, is expanded further in this section as the basis for the exposure assessment. The source area, intermedia transport mechanisms, exposure routes, and populations are evaluated in this section to define exposure pathways. Contractor should attempt to identify and discuss all relevant exposure pathways, surface water transport, air dispersion, ground water transport developed in the fate and transport section, to adequately evaluate qualitatively potential risks to receptors, for current and potential future exposures.

Populations initially identified in the conceptual site model should be evaluated in more detail, as to those populations which may reasonably be expected to potentially come into contact with site wastes, by the identified exposure routes, both currently and in the future. Generally, "worst case" assessments should be avoided as unrealistic.

Intakes for exposure routes, ingestion, inhalation, and dermal contact, should not be calculated, but rather discussed as a range of potential exposures concentrations that identified populations could be exposed to.

2.8.1.3 Risk Screening Characterization

In this section, the Contractor will be required to qualitatively discuss potential exposure point concentrations comparatively to reference concentrations which correspond to acceptable risk exposures.

Those exposure point concentrations for various site media which are projected to exceed reference concentrations based on a qualitative narrative, will be used to establish the basis for time-critical or non-time-critical removal actions, or requirements for further study, in addition to or in absence of any specific regulatory requirements which may guide such action. Those sites which may reasonably be assumed, based on the preliminary risk analysis, to have no

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unacceptable health risks associated with potential exposures, may incorporate criteria in developing decision for no further action.

2.8.2 Environmental Evaluation

The environmental evaluation is less straightforward than the human health evaluation. In some ways, it is complicated by competing exposure pathway analysis for human receptors, particularly in defining potential environmental populations and in determining requirements for response actions, time-critical and non-time critical removal actions. (See requirements in RI/FS "Environmental Evaluation", for developing a qualitative environmental evaluation. Requirements for PA/SI should be similar, but at a lesser level of effort, for data collected to support the analysis.)

2.8.3 Identification and Analysis of Available ARARs

Contractor should be discouraged from relying on evaluation of background when assessing non-naturally occurring substances, for ARAR/action level determination. Contractor should also be discouraged from attempting to apply regulatory requirements which are not relevant to the site or site wastes, in absence of other criteria. Action levels developed by Contractor, numerical limits for the media of concern, shall be based on risk screening concentrations as well as identified AAARs to determine need for further action, time-critical or non-time-critical removal actions, forwarding site for further study, or eliminating site from further consideration.

2.8.4 Develop Recommendations and Conclusions

Recommendation is normally to initiate an RI/FS and/or (concurrent) removal action, if conditions indicate. Otherwise, continued site monitoring or the "No Action" alternative is recommended.

In some cases, the site should be addressed by a different program, i.e. "asbestos removal," etc.

2.9 Task 9 Hazard Ranking System (HRS) Scoring

This section would require the Contractor to use available information from literature and data collected, based on DQOs, to rank site pursuant to the HRS. All information used shall be documented, as well as any assumptions used in arriving at each numerical score used to evaluate the HRS, for receptors, pathways, and chemicals. Reference Federal Register, Vol. 55, No. 241, 51532-51667, Hazard Ranking System, Final Rule, in specifying requirements for Contractor requirements for scoring and USACE involvement in scoring decision.

2.10 Task 10 Preliminary Response Action Identification

2.10.1 Analysis of ARARs

2.10.2 Identify Appropriate Response Action

Detailed scoping of alternative selection is difficult and inappropriate prior to identification and quantification of contaminated media and contaminants. It is a good idea to include an option for alternative development in the PA/SI. This section would require evaluation beginning where the preliminary evaluation required of the Contractor by Section 2.3.1.1.2, Removal Action Alternative Development. This section should be prepared by the process engineer.

A detailed discussion of the analysis of alternatives is included in Attachment K to the ETL, Alternative Development and Selection.

2.11 Task 11 PA/SI Report

2.11.1 Pre-Draft Data Package

Reference Section 2.7.1 of the RI/FS SOW outline for specifics on this submittal.

2.11.2 Draft SI Report

2.11.3 Final PA/SI Report

2.11.4 Completion of PA and SI EPA and/or State Standard Forms

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3. Project Management

Refer to explanatory text under the Project Management Section (3.) in the RI/FS SOW outline, Enclosure 2 to the ETL.

- 3.1 Project Manager
- 3.2 Coordination with Other Entities
- 3.3 Conference Notes
- 3.4 Confirmation Notices
- 3.5 Government Support
 - 3.5.1 Government Provided Data and Information
 - 3.5.2 Existing Plans/Surveys/Air Photos
 - 3.5.3 Utilities
 - 3.5.4 Permits
 - 3.5.5 Rights of Entry
 - 3.5.6 Security
 - 3.5.7 Equipment Storage/Staging Areas
 - 3.5.8 Temporary Office
 - 3.5.9 Grading and Site Restoration
 - 3.5.10 Cuttings/Spoil Disposal
 - 3.5.11 Wetlands Determination
- 3.6 Travel and Meetings
 - 3.6.1 Preliminary Site Visit
 - 3.6.2 Draft PA Meeting
 - 3.6.3 Draft Workplan Meeting/Field Work Start-up Meeting
 - 3.6.4 SI Draft Report Review Meeting
 - 3.6.5 SI Final Report Review Meeting
 - 3.6.6 Public Meetings
 - 3.6.7 Site Visits
 - 3.6.8 Additional Trips
- 3.7 Schedules
- 3.8 Submittals

This section summarizes the submittals expected during the course of the project. No technical requirements are presented here. Number of copies required are specified here.

- 3.8.1 General Submittal Requirements
- 3.8.2 Document Submittal Register
- 3.8.3 SI Workplan
 - 3.8.3.1 Chemical Data Acquisition Plan (CDAP) Attachment

- 3.8.3.2 Monitoring Well Installation and
Drilling Plan (MWIP) Attachment
- 3.8.3.3 Site Safety and Health Plan (SSHP)
Attachment
- 3.8.4 Progress Reports
 - 3.8.4.1 Monthly Progress Reports
 - 3.8.4.2 Daily Quality Control Reports
- 3.8.5 Drilling Logs
- 3.8.6 Monitoring Well Construction Diagram and
Development Record
- 3.8.7 Survey Documents
- 3.8.8 Draft PA Report
- 3.8.9 Quality Control Summary Report
- 3.8.10 PA/SI Report
 - 3.8.10.1 Draft SI
 - 3.8.10.2 Final PA/SI
 - 3.8.10.3 PA and SI Forms

4. NEPA Compliance

At this point, there are probably few NEPA requirements. It is suggested that the project manager check with the NEPA experts and office of counsel to determine if there are any applicable NEPA requirements that should be added to this scope.

5. Health and Safety Technical Requirements

This section presents the technical requirements for health and safety. Refer to Enclosure 8 to the ETL for the suggested language for this SOW section.

Two topics, "Site Description and Contamination Characterization" and "Staff Organization, Qualifications, and Responsibilities" may be addressed as a portion of the workplan as outlined in section 2.1. In the event this material is addressed within the workplan (WP), the applicable WP sections should be referenced within these sections of the SSHP. Regardless of location, these topics should address the requirements contained in Enclosure 8.

6. Chemistry Technical Requirements

This section presents the technical requirements for performance of sampling and analysis activities. Specific requirements are discussed under the individual topics. Additional guidance on the typical content of this section is provided as Enclosure 13 to the ETL, Chemistry Technical Requirements. An outline of the section is provided here.

6.1 Introduction

6.1.1 CDAP Format and Implementation Requirements

- 6.1.1.1 Section 1. Table of Contents
- 6.1.1.2 Section 2. Project Background Data
- 6.1.1.3 Section 3. Chemical Requirements to Support Project Data Quality Objectives (DQOs)

- 6.1.1.4 Section 4. Contractor Project Organization and Functional Areas of Chemistry Responsibilities

6.1.1.5 Section 5. Field Activities:

- 6.1.1.5.1 Field Instrumentation and Equipment (Calibration and Maintenance)

- 6.1.1.5.2 Field Documentation

- 6.1.1.5.3 Daily Quality Control Report (DQCR)

- 6.1.1.5.4 QC and QA Field Samples

- 6.1.1.5.5 Decontamination Procedures

- 6.1.1.5.6 Matrix: Ground Water Samples

- 6.1.1.5.6.1 Field Screening

- 6.1.1.5.6.2 Locations

- 6.1.1.5.6.3 Sampling Procedure

- 6.1.1.5.6.4 Analytical Procedure

- 6.1.1.5.6.5 Sample Containers, Preservations, Holding Times

- 6.1.1.5.7 Matrix: Surface Water Samples

- 6.1.1.5.7.1 Field Screening

- 6.1.1.5.7.2 Locations

- 6.1.1.5.7.3 Sampling Procedure

- 6.1.1.5.7.4 Analytical Procedure

- 6.1.1.5.7.5 Sample Containers, Preservations, Holding Times

- 6.1.1.5.8 Matrix: Leachate Samples

- 6.1.1.5.8.1 Field Screening

- 6.1.1.5.8.2 Locations

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- 6.1.1.5.8.3 Sampling Procedure
- 6.1.1.5.8.4 Analytical Procedure
- 6.1.1.5.8.5 Sample Containers,
Preservations,
Holding Times
- 6.1.1.5.9 Matrix: Soil Samples
 - 6.1.1.5.9.1 Field Screening
 - 6.1.1.5.9.2 Locations
 - 6.1.1.5.9.3 Sampling Procedure
 - 6.1.1.5.9.4 Analytical Procedure
 - 6.1.1.5.9.5 Sample Containers,
Preservations,
Holding Times
- 6.1.1.5.10 Matrix: Sludge/Sediment
Samples
 - 6.1.1.5.10.1 Field Screening
 - 6.1.1.5.10.2 Locations
 - 6.1.1.5.10.3 Sampling Procedure
 - 6.1.1.5.10.4 Analytical Procedure
 - 6.1.1.5.10.5 Sample Containers,
Preservations, Holding
Times
- 6.1.1.5.11 Matrix: Air Samples
 - 6.1.1.5.11.1 Locations
 - 6.1.1.5.11.2 Sampling Procedure
 - 6.1.1.5.11.3 Analytical Procedure
 - 6.1.1.5.11.4 Sample Containers,
Preservations, Holding
Times
- 6.1.1.5.12 Matrix: Surface Samples
 - 6.1.1.5.12.1 Field Screening
 - 6.1.1.5.12.2 Locations
 - 6.1.1.5.12.3 Sampling Procedure
 - 6.1.1.5.12.4 Analytical Procedure
 - 6.1.1.5.12.5 Sample Containers,
Preservations, Holding
Times
- 6.1.1.5.13 Matrix: Soil Gas Samples
 - 6.1.1.5.13.1 Field Screening
 - 6.1.1.5.13.2 Locations
 - 6.1.1.5.13.3 Sampling Procedure
 - 6.1.1.5.13.4 Analytical Procedure
 - 6.1.1.5.13.5 Sample Containers,
Preservations, Holding
Times
- 6.1.1.5.14 Matrix: Drum I Tank Samples
 - 6.1.1.5.14.1 Field Screening

- 6.1.1.5.14.2 Locations
- 6.1.1.5.14.3 Sampling Procedure
- 6.1.1.5.14.4 Analytical Procedure
- 6.1.1.5.14.5 Sample Containers,
Preservations, Holding
Times
- 6.1.1.6 Section 6. Sample Chain of
Custody, Packing and Shipping
- 6.1.1.7 Section 7. Laboratory Activities:
 - 6.1.1.7.1 Cooler Receipt Form
 - 6.1.1.7.2 Instrument Calibration and
Frequency
 - 6.1.1.7.3 Quality Control Procedures
 - 6.1.1.7.4 Preventive Maintenance
 - 6.1.1.7.5 Corrective Action
 - 6.1.1.7.6 Data Reduction, Assessment /
Validation, and Documentation
- 6.1.1.8 Section 8. Chemical Data Quality
Management Deliverables
 - 6.1.1.8.1 Daily Quality Control Reports
 - 6.1.1.8.2 Laboratory Daily Quality
Control Reports
 - 6.1.1.8.3 Non-Routine Occurrences
Reports
 - 6.1.1.8.4 Pre-Draft Data Package
 - 6.1.1.8.4.1 Pre-Draft Data Package
Organization
 - 6.1.1.8.4.2 Minimum Data Reporting
Requirements for Pre-
Draft Data Package
 - 6.1.1.8.5 Quality Control Summary
Report
 - 6.1.1.8.6 Chemical Quality Assurance
Report
- 6.1.2 Contractor Laboratory Approval
 - 6.1.2.1 Commercial Laboratory Evaluation
 - 6.1.2.2 Laboratory Quality Management Manual
 - 6.1.2.3 Preliminary Questionnaire
 - 6.1.2.4 Performance Evaluation Samples
 - 6.1.2.5 Laboratory Inspection
 - 6.1.2.6 Approval
 - 6.1.2.7 Expiration of Validation
- 6.2 Miscellaneous Requirements
 - 6.2.1 Investigation Derived Wastes

7. Geotechnical Requirements

All of the field activities done for a PA/SI are also often included in a remedial investigation; therefore, refer to text in Section 6 of the RI/FS scope-of-work outline for typical requirements and other information for this section of the PA/SI scope. Note that only those topics provided under Section 6 of the RI/FS scope outline that cover field work specified under Field Investigations (Section 2.5) of this (PA/SI) scope should be included here.

- 7.1 General Specifications
 - 7.1.1 Qualified Geologist/Geotechnical Engineer
 - 7.1.2 Applicable Driller Permits and Licenses
 - 7.1.3 Compliance with State Requirements
 - 7.1.4 Utility Clearances
 - 7.1.5 Disposal of Investigation-Derived Waste (IDW)
 - 7.1.6 Explosive Ordnance Disposal
 - 7.1.7 Decontamination of Equipment/Tools
 - 7.1.8 Water Source and Testing
 - 7.1.9 Site Restoration and Protection
 - 7.1.10 Contractor Responsibility for Wells
 - 7.1.11 Site Surveying
- 7.2 Monitoring Well Installation and Drilling Plan (MWIP) Attachment
- 7.3 Subsurface Soil/Rock Sampling
 - 7.3.1 Drilling Method
 - 7.3.2 Test Pit Excavation
 - 7.3.3 Logging Requirements
 - 7.3.4 Geotechnical Sampling and Analyses
 - 7.3.5 Coring/Core Handling
 - 7.3.6 Backfilling
 - 7.3.7 Sampling Techniques
 - 7.3.8 Field Screening
 - 7.3.9 Location/Elevation Survey of Boreholes/Test Pits
- 7.4 Monitoring Well Installation
 - 7.4.1 Drilling Method
 - 7.4.2 Soil/Rock Sampling While Drilling
 - 7.4.3 Field Screening
 - 7.4.4 Casing and Screen
 - 7.4.5 Gravel/Sand Pack
 - 7.4.6 Grouting
 - 7.4.7 Surface Completion
 - 7.4.8 Well Development
 - 7.4.9 Monitoring Well Construction Diagrams

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- 7.4.10 Survey
- 7.4.11 In-Situ Permeability (Single Well) Testing
- 7.4.12 Water Level Measurements
- 7.4.13 Dedicated Pumps and/or Bailers
- 7.4.14 Well Sampling
- 7.5 Existing Domestic/Industrial/Municipal Well Inventory
- 7.6 Geophysical Surveys
 - 7.6.1 Surface Geophysics
 - 7.6.1.1 Methods to be Considered
 - 7.6.1.2 Plan Preparation
 - 7.6.1.3 Instrument Calibration
 - 7.6.1.4 Survey Grid/Traverse Spacing
 - 7.6.1.5 Measurement Protocol
 - 7.6.1.6 Grid/Traverse Surveying
 - 7.6.1.7 Data Recording
 - 7.6.1.8 Data Processing and Analysis
 - 7.6.1.9 Report and Drawings
 - 7.6.2 Downhole Geophysics
 - 7.6.2.1 Operator Licensing
 - 7.6.2.2 Methods to be Used
 - 7.6.2.3 Plan Preparation
 - 7.6.2.4 Instrument Calibration
 - 7.6.2.5 Data Recording and Log Scale
 - 7.6.2.6 Data Analyses
 - 7.6.2.7 Report and Log Presentation
- 7.7 Vadose Zone Permeability/Infiltration Testing
 - 7.7.1 Method
 - 7.7.2 Data Analysis
- 7.8 Fracture Trace Analysis (FTA)
 - 7.8.1 Imagery to be Used
 - 7.8.2 Ground Truth/Verification
 - 7.8.3 FTA Report
- 7.9 Soil Gas Survey Methodology
 - 7.9.1 Probe Design and Placement
 - 7.9.2 Probe Purging
 - 7.9.3 Sample Recovery
 - 7.9.4 Decontamination of Equipment
 - 7.9.5 Blank, Background, and Duplicate Samples
- 7.10 Geographic Information Systems (GIS)

8. Air

This section presents the technical requirements for performance of activities associated with air impact assess-

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ments. Enclosure 16 presents a general description of air impact assessments for those not familiar with the process.

Explanatory text is included in the RI/FS outline. The scope of activities performed in the PA/SI is generally less than that of the RI/FS. The level of detail to be included in the scope depends on the project and the Contractor's experience in performing air monitoring and modeling as well as the Contractor's experience in working with the Corps.

- 8.1 Ambient Air Monitoring/Sampling
- 8.2 Meteorological Monitoring
 - 8.2.1 Review Available Data
 - 8.2.2 On-site Monitoring
 - 8.2.2.1 Meteorological Tower
 - 8.2.2.2 Data to be Collected
 - 8.2.2.3 Data Processing, Documentation and Reporting
- 8.3 Emission Rate Measurements
- 8.4 Emission Rate Estimates
 - 8.4.1 Uncontrolled Emission Sources
 - 8.4.2 Remedial Action Sources
 - 8.4.3 Emission Models
 - 8.4.4 Emission Factors
- 8.5 Atmospheric Dispersion Modeling
 - 8.5.1 Purpose and Rationale
 - 8.5.2 Review of Previous Models
 - 8.5.3 Input Data
 - 8.5.3.1 Source Data
 - 8.5.3.2 Receptor Data
 - 8.5.3.3 Meteorological Data
 - 8.5.4 Modeling Methodology
 - 8.5.5 Reporting Results

9. Miscellaneous Requirements